

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

STACY ERNST, et al.

Plaintiffs,

v.

CITY OF CHICAGO,

Defendant.

No. 08 c 4370

Judge Charles R. Norgle, Sr.

Magistrate Judge Jeffrey Cole

PLAINTIFFS' OPPOSITION TO DEFENDANT'S MOTION TO EXCLUDE
DR. WILLIAM MCARDLE

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INTRODUCTION

Defendant City seeks to exclude Dr. William McArdle, an acknowledged expert in the relevant field of Exercise Physiology. This effort is based, in substantial part, on Defendant's contention that Dr. McArdle should have copied the flawed methods of one of its experts, Dr. Gebhardt, Defendant's Motion ("Def. Mot.") at 1, and because Dr. McArdle tailored his review to the questions and tasks before him rather than repeating in rote fashion what he has done in the past when facing different tasks and circumstances. Def. Mot. at 6-7. Not surprisingly, Defendant cites no authority for these unique suggestions. Indeed, any true expert would approach each case and situation in a manner tailored to the process and inquiry. This is precisely what Dr. McArdle did.

Dr. McArdle is an expert in the science of Exercise Physiology. This expertise was acknowledged by Defendant's expert, Dr. Deborah Gebhardt, who cited one of his authoritative textbooks in her report and deposition testimony. Gebhardt Dep. 89:23-90:4, 206:15-19, Jan. 9, 2013 (Ex. 1, hereto). The importance of Exercise Physiology was likewise acknowledged by Defendant's other proffered expert, Dr. Rick Jacobs. Dr. Jacobs noted that he defers to an expert in Exercise Physiology when seeking to determine the nature of a physical strength involved in various exercises, testing components, and in designing informational brochures or training programs for physical tests. Jacobs Dep. 26:19-27:4; 117:8-118:20, Jan. 29, 2013 (Ex. 2, hereto); Jacobs Dep. 96:4-25, Jan. 29, 2013 (Ex. 3, hereto).

Dr. McArdle's testimony is offered in this case to demonstrate that the Physical Abilities Test (PAT) developed by Human Performance Systems (HPS) and implemented by the City of Chicago Fire Department (CFD) does not actually measure what its designers say it measures. *See* McArdle Dec. ¶ 11, Feb. 28, 2013 (Ex. 2 to Def. Mot.) (stating that test misclassifies "the physiologic and metabolic demands of the test items"); ¶ 15 (describing Dr. Gebhardt's

confusion as to what the “test items require and what they actually measure”). The test’s components, from an Exercise Physiology standpoint, have an adverse impact on women. *Id.* at ¶ 11 (describing “gender-related differences in anatomy and physiology and their effect on PAT item scores”). An adequate training program – with adequate time and accurate information and materials provided for training – would be an essential less discriminatory alternative for female candidates to the paramedic position. *Id.* at ¶¶ 17-20 (noting the limitations of the test administration, including the timing of the announcement, the importance of training, the inadequacy of the training provided, and what the most effective training would have been). The work that he did to prepare for and to formulate these opinions more than satisfies the standard concerning the admissibility of expert testimony articulated by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

The City further protests that Dr. McArdle has never studied the paramedic job, that he did not conduct any interviews with academy instructors or paramedics, and that he did not conduct any “ride-alongs” with paramedics. Def. Mot. at 2. These objections misconstrue the requirements of *Daubert* and the job Dr. McArdle was hired to do. Unlike the work necessary to determine whether a pre-hire test is needed and to actually design and implement it, Dr. McArdle was not required to conduct these tasks. He was also not required to perform a job analysis, conduct a validation study, or actually develop a test of his own in order to offer opinions regarding the physiologic requirements and impact of a PAT that he has studied closely and that contains exercise components with which he has decades of professional and research experience. As his conclusions are drawn from his own professional experience, as well as extensive scholarship including *his* three textbooks, the reliability of his testimony is without question and it should be admitted to assist the trier of fact in this case. *See Kumho Tire Co., Ltd.*

v. Carmichael, 526 U.S. 137 (1999) (explaining that “personal knowledge or experience” can satisfy the reliability requirement of *Daubert*); *United States v. Young*, 316 F.3d 649, 657 (7th Cir. 2002); *United States v. Allen*, 269 F.3d 842, 845-46 (7th Cir. 2001) (same).

DR. McARDLE’S QUALIFICATIONS AND OPINIONS

Dr. William McArdle is an Exercise Physiologist with over 45 years of professional experience in his field, McArdle Rep. ¶ 2, during which he has gained unparalleled expertise in the precise areas in which he has offered expert opinions in this case. He has published research studies in peer-reviewed scientific journals, and has designed, implemented, and published training studies that have utilized highly specific forms of exercise including the training of candidates for firefighter and sanitation work. *Id.* In addition, he has validated measures to predict aerobic capacity and body composition of both men and women, as well as formulated the at-home physical training program for candidates preparing to take the Candidate Physical Ability Test (“CPAT”), widely used by many jurisdictions to select firefighter candidates. *Id.*

Dr. McArdle received his Ph.D. in Exercise Physiology from the University of Michigan in 1965. *Id.* at ¶ 3. Dr. McArdle has been a professor of Nutrition and Exercise Science at the City University of New York’s Queens College since earning his Ph.D. *Id.* at ¶ 4. In addition to his responsibilities as a teacher, Dr. McArdle also directed Queens College’s Laboratory of Applied Physiology from 1965 to 1999. *Id.* Dr. McArdle has also served as an Adjunct Professor at Columbia University, Adelphi University, and New York Medical College. *Id.* He has taught courses in Research Methods and Basic Statistics in Exercise Science, Exercise Physiology, Laboratory Measurement in Applied Physiology, and Sports and Exercise Nutrition.

Dr. McArdle has authored or co-authored eight books, including three authoritative text books, which are widely used in the study of Exercise Physiology.¹ *Id.* at 6 and Ex. A (report attachment). He has published 45 articles related to various topics in Exercise Physiology in peer-reviewed scientific journals, nine such articles in professional journals, and has contributed to the publishing of nine book reviews or book chapters. *Id.* at Ex. A. Indeed, Dr. Gebhardt cited to one of those textbooks, although incorrectly, in trying to explain a change in the testing protocol she claims was implemented in 2005 after three rounds of testing in which she did not notice the problem. Gebhardt Dep. 89:23-90:4.

Dr. McArdle's widely-recognized scholarly work on the proper design and implementation of research protocols for studying Exercise Physiology has been funded by the National Institutes of Health, the Office of Naval Research, and U.S. Army Medical Research and Development Command. Def. Mot. Exh. 2, McArdle Dec. ¶ 6. His work focuses on "the proper selection and assignment of representative samples of subjects, the randomization of subjects to diverse experimental treatments, the application of appropriate and valid measurement tools and statistical analyses, and the establishment of a standardized test environment to assure that all subjects are measured under identical conditions with appropriate test preparation." *Id.* at ¶ 9. These considerations are commonly regarded as the "prerequisites for physical testing in an occupational setting" and are the precise subjects upon which Dr. McArdle has provided his expert opinions in this case. *Id.*

In addition to his extensive scientific, professional, and academic background in this area,

¹ Dr. McArdle is senior author of the following textbooks in the exercise science area: Exercise Physiology: Nutrition, Energy, and Human Performance (8th ed.); Essentials of Exercise Physiology (4th ed.); and Sports and Exercise Nutrition (4th ed.). "Exercise Physiology" received the First Prize for Medicine in the 2002 British Medical Association Medical Book Competition. Def. Mot. Ex. 2, McArdle Dec. ¶ 6.

Dr. McArdle relied on a thorough review of the following materials related to the City's use of the PAT to select paramedic candidates to form his conclusions at issue here: "(i) information regarding the Physical Abilities Test ('PAT') administered by the City, including test administration information and passing score requirements; (ii) various materials related to the development of the PAT; (iii) candidate notice of test administration; (iv) description of PAT and materials related to candidate training; and (v) relevant deposition testimony regarding test development and validation." *Id.* at ¶ 10.

Based on his knowledge, experience, and his review of these materials, Dr. McArdle developed the following expert opinions concerning the City's use, implementation, and administration of the PAT: (1) the City failed to provide proper notification to candidates of specific test items and scoring requirements, including the failure to provide notification to candidates of test requirements within a time frame necessary to adequately train for the exam; (2) the City (and its contractor) misclassified the physiologic and metabolic demands of the test items²; (3) the City (and its contractor) failed to provide adequate information to candidates as to the proper and most effective way to prepare for the PAT; and (4) the City failed to provide opportunities for candidates to view and practice the actual PAT within a sufficient time frame so as to optimize pre-test exercise training. *Id.* at ¶ 11-26. In Dr. McArdle's expert opinion, these failures had an especially pronounced effect on female applicants as, "due to inherent sex-specific biologic difference[s], [women] have a more difficult challenge achieving the same

² In non-scientific terms, Dr. McArdle's opinion is that the test events designed by the City's test developer do not even measure the physical attributes claimed. For example, the stair climb was not a measure of "muscular endurance," as claimed by Dr. Gebhardt, but rather a test of aerobic fitness. Def. Mot. Ex. 2, McArdle Dec. ¶15(a). Similarly, the two minutes of "all-out cranking" on an arm ergometer was not a measure of "arm endurance," as claimed by Dr. Gebhardt, but rather "largely a measure of anaerobic power output." *Id.* at ¶15(b). Dr. Gebhardt is not an exercise physiologist and it showed in these fundamental test design errors.

performance score *on tests of physical fitness* as male counterparts of equivalent training status.” *Id.* (emphasis added). Yet the differences in scores on *physical fitness tests* do not equate to lesser competence or capacity as paramedics. To the contrary, Dr. McArdle determined that the PAT, which disproportionately eliminated female candidates for CFD Paramedic positions, failed both “in describing and[] evaluating the full spectrum of paramedic responsibilities and identifying candidates most likely to become competent paramedics.” *Id.*

ARGUMENT

I. STANDARD FOR ADMISSIBILITY OF EXPERT TESTIMONY

The standard for evaluating the admissibility of expert testimony is found in the language of Federal Rule of Evidence 702³ and the Supreme Court’s decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *Lewis v. CITGO Petroleum Corp.*, 561 F.3d 698, 705 (7th Cir. 2009). The analysis set forth in *Daubert* applies to all types of testimony based on expert or otherwise specialized knowledge. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141 (“We conclude that *Daubert*’s general holding . . . applies . . . to testimony based on ‘technical’ and ‘other specialized knowledge.’”) (citing Fed. R. Evid. 702). The decision in *Daubert* created an easier standard to meet, relaxing the “uncompromising . . . ‘general acceptance’” test formerly used by many Circuit Courts of Appeal, and first articulated in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). *Daubert*, 509 U.S. at 579, 596.

Under *Daubert*, courts are charged with reviewing whether expert evidence is both

³ Federal Rule of Evidence 702 reads as follows: “A witness who is qualified as an expert by knowledge, skill, experience, training, *or* education may testify in the form of an opinion or otherwise if: (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.”

reliable and relevant. *See id.* at 590-91. The reliability inquiry is one of “evidentiary reliability—that is, trustworthiness,” *id.* at 590 n.9., and can be established purely on the knowledge and experience of the testifying expert. *See Kumho Tire*, 526 U.S. at 150 (“[T]he relevant reliability concerns may focus upon personal knowledge or experience.”); *Metavante Corp. v. Emigrant Sav. Bank*, 619 F.3d 748, 761 (7th Cir. 2010). As the City itself acknowledges, district courts have “considerable leeway” in determining admissibility. *Kumho Tire*, 526 U.S. at 152; Def. Mot. at 5. Courts are to “consider a proposed expert’s full range of practical experience as well as academic or technical training when determining whether that expert is qualified to render an opinion in a given area.” *Smith v. Ford Motor Co.*, 215 F.3d 713, 718 (7th Cir. 2000). As the Federal Rules Advisory Committee noted in amending Rule 702 after *Daubert* and *Kumho Tire*, “a review of the caselaw . . . shows that the rejection of expert testimony is the exception rather than the rule.” Advisory Committee Notes, Fed. R. Evid. 702 (2000).

Recognizing this, the Seventh Circuit has cautioned that the *Daubert* inquiry is a limited one – repeatedly stating that expert testimony ought not be excluded simply because an opponent suggests that alternative techniques or methodologies should have been used or that the expert made a factual or other error. *See, e.g., Manpower, Inc. v. Ins. Co. of Pa.*, 732 F.3d 796 (7th Cir. 2013); *Schultz vs Akzo Nobel Paints, LLC*, 721 F.3d 426 (7th Cir. 2013); *Lee v. Carthage Coll.*, 714 F.3d 516 (7th Cir. 2013) (reversing district court exclusion of expert testimony).

In sum, Defendant’s disagreements with Dr. McArdle’s expert opinions should be addressed at trial and are better adjudged by the trier of fact.

II. UNDER *DAUBERT* AND ITS PROGENY, DR. McARDLE PROFFERS RELIABLE OPINION TESTIMONY THAT IS ADMISSIBLE DUE TO HIS QUALIFICATIONS AS AN EXPERT AND THE SPECIALIZED SCIENTIFIC METHODOLOGY THAT HE UTILIZED.

As an expert in his field, and in applying a proper methodology for his undertaking in this case, Dr. McArdle offers reliable testimony that is admissible under *Daubert* and *Kumho Tire*. In determining reliability, the Seventh Circuit instructs district courts to look at two factors consistent with the language of the Federal Rules of Evidence: (1) the expert must be qualified as an expert by knowledge, skill, experience, training, *or* education; and (2) the expert's reasoning or methodology underlying his testimony must be scientifically or otherwise reliable. *See Myers v. Ill. Central R.R. Co.*, 629 F.3d 639, 644 (7th Cir. 2010).

The City exaggerates the specialized knowledge needed to understand the job of a CFD Paramedic – while understating the knowledge, experience, and expertise of Dr. McArdle. Furthermore, the City ignores the reality that such specialized knowledge – though already attained and understood by Dr. McArdle – is not necessary for the opinions he offers related to the PAT. As outlined above, a party can demonstrate the reliability of its expert's opinions through his or her qualifications and experience. *Walker v. Soo Line R.R. Co.*, 208 F.3d 581, 591 (7th Cir. 2000). Dr. McArdle's professional and academic experience relate directly to components of the PAT upon which he is permitted to opine. *See, e.g.*, McArdle Dep. 124:15-24, Apr. 23, 2013 (Ex. 4, hereto) (explaining the “physiologic fact” of how training effects the performance capacity on specific anaerobic activities, such as the arm crank component of the PAT); *id.* at 134:7-10 (“Q. In your classes, what tests were you giving them that was (sic) a leg lift? A. Well, we're giving the exact leg lift that Dr. Gebhardt gave them [in the PAT at issue in this case].”).

The City's criticism that Dr. McArdle did not follow the same methodology in this case that he has in others on which he has worked is equally misguided and disingenuous. Dr. McArdle followed the methods necessary for him to provide the reliable expert testimony that he developed. Additionally, while Dr. McArdle's methods in this case may not be identical to those used in other cases on which he has worked, *see* Ex. 4, McArdle Dep. 31:23-24 (explaining he did a ride-along with the fire department in "Berkman in Buffalo"), *Daubert* and its progeny contain no requirement that the exact same process be followed in every instance, especially with different questions posed and divergent facts presented. *Cooper v. Carl A. Nelson & Co.*, 211 F.3d 1008, 1020 (7th Cir. 2000) ("Our case law has recognized that experts in various fields may rely properly on a wide variety of sources and may employ a similarly wide choice of methodologies in developing an expert opinion."); *see also Kumho Tire*, 526 U.S. at 142 ("[T]he law grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination.").

Dr. McArdle often employed different methods when faced with different tasks. Although not acknowledged by the City, in Buffalo, San Francisco, and Columbus, Dr. McArdle was tasked by the U.S. Justice Department to assist in the evaluation of the need for and the nature of testing protocols to be adopted for firefighter applicants.⁴ His work in those cases *followed findings or settlements in which the prior testing protocols were either rejected or voluntarily abandoned* by the municipality in cooperation with the Justice Department, i.e. as part of the remedial processes ordered by the Court in these class cases. *See, e.g., United States v. Buffalo*, No. Civ-1974-195, 1978 WL 207 13901 (W.D.N.Y. Dec. 11, 1978). In each case, he

⁴ Dr. McArdle has been asked to provide expert guidance in several federal cases, most frequently by the DOJ, and has been accepted by a number of federal courts. Def. Mot. Ex. 2, McArdle Dec. at ¶ 7 and App. A at 17-19.

tailored his work to the specific requirements of the task presented in each jurisdiction. *See* Ex. 4, McArdle Dep. 23:1-49:19. Defendant cites no standards or support for its assertion that scientific methods require or indeed permit repetition of the same methodology regardless of the issues or problems being addressed.

A. Dr. McArdle Is Qualified to Offer an Opinion on the Efficacy of the City’s PAT, Making his Testimony Reliable.

Dr. McArdle is qualified to provide his expert opinions in this case, as he has satisfied factors outlined by the Supreme Court in *Daubert*, and also based on his knowledge and experience. While they do not “necessarily nor exclusively appl[y] to all experts or in every case,” the *Daubert* Court listed several factors that courts can evaluate in determining the admissibility of expert testimony. *Kumho Tire*, 526 U.S. at 141. These include “testing, peer review, error rates, and ‘acceptability’ in the relevant scientific community, some or all of which might prove helpful in determining the reliability of a particular . . . ‘theory or technique.’” *Id.* (quoting *Daubert*, 509 U.S. at 593-94). As seen from the discussion of his qualifications, above, and his curriculum vitae, *see* Def. Mot. Ex. 2, McArdle Dec. Ex. A, Dr. McArdle’s opinions in this matter are based on research, as well as professional and academic experience, that has been both published and peer reviewed. *See Id.* at App. C (describing materials relied upon); McArdle Dep. 97:13-98:4 (explaining that he relied on his own textbook to develop a specific opinion in this case); 99:12-16 (explaining that his textbook is “highly referenced” and thus supported by those materials as well); 108:9-109:4 (again explaining reliance on his own textbook for a specific opinion); 115:2-12 (explaining his reliance on his own research paper in a scientific journal). He literally *wrote the book* on Exercise Physiology that is widely accepted as an authoritative text on the subject – evidenced by its eight published editions. Ex. 4, McArdle Dep. 110:20-22 (noting that the textbook upon which he relied primarily is in its “8th edition” and that

“if there were some bad stuff in it, we would have heard about it”). His work and the opinions to which he testifies thus fulfill many of the factors discussed by the Supreme Court in *Daubert*.⁵

In addition, a party can qualify an expert to give opinion testimony based solely on specialized knowledge and experience. *See Kumho Tire*, 526 U.S. at 152. The Advisory Committee notes that “the text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience.” Advisory Committee Notes, Fed. R. Evid. 702 (2000). As courts may ultimately base their decisions on “either *Daubert*’s factors *or any other* set of reasonable reliability criteria,” such as knowledge and experience, “the trial court must simply decide whether this particular expert ha[s] sufficient specialized knowledge to assist the jurors in deciding the particular issues in the case.” *Kumho Tire*, 526 U.S. at 156 (internal quotations to citation omitted). Dr. McArdle undoubtedly does.

The City relies heavily on the Northern District of Illinois’s decision in *Obrycka v. City of Chicago*, 792 F. Supp. 2d 1013 (N.D. Ill. 2011). *Obrycka* is inapposite and provides no meaningful guidance to this Court on how to make its admissibility determination. First, Dr. Manning, the expert in *Obrycka*, was tasked with addressing a completely different kind of issue: “whether a culture of impunity and a Code of Silence are endemic to the Chicago Police Department and, if he determines that such a culture exists, to opine on the ways in which that culture directly causes violations of the constitutional rights of its citizens.” *Id.* at 1016-17 (internal quotations to citation omitted).

There were myriad problems with Dr. Manning’s work. He issued a nine page report with “sweeping generalizations” about police conduct and culture and then used the generalizations to

⁵ The *Kumho* Court made clear that courts are not required to follow any of these factors in determining the admissibility of expert testimony, but that they can be a useful guide to judges making such determinations. *See Kumho Tire*, 526 U.S. at 141.

ascribe a “*modus operandi*” to the Chicago Police Department. *Id.* This was his first time testifying as an expert. *Id.* at 1020. Dr. Manning relied solely on materials provided by plaintiffs’ counsel, including summaries of data, evidence including depositions, and the CPD’s investigation into the incident at issue in the case. *Id.* He also incorporated specific arguments almost verbatim into his reports from outlines prepared by the Plaintiffs’ attorneys. *Id.* at 1026. Furthermore, Dr. Manning admitted to concerns about the unsupported generalizations in his report at deposition, *id.* at 1023, and he did not possess relevant skills and experience or even familiarize himself with “the specific subject of his expert testimony.” *Id.* Dr. Manning disavowed the very methods that he used in creating his report. *Id.* at 1028. This proved fatal to his testimony and is an issue not present in this case.

In stark contrast, Dr. McArdle has “been accepted by federal courts and [has served] as an expert witness in matters related to employment recruitment and selection in relation to physical requirements . . . and physical testing of those requirements.” Def. Mot. Ex. 2, McArdle Dec. ¶ 7. Dr. McArdle arrived at his conclusions by analyzing the validation study for and the actual components of the PAT. His career, education, and experience are the foundation of his opinions.

Walker v. Soo Line R.R. Co., 208 F.3d 581 (7th Cir. 2000), provides a more apt comparison. There, the panel reversed the district court’s exclusion of several of the plaintiff’s experts in a personal injury case. The Seventh Circuit allowed the expert testimony of a psychologist whose qualifications, like those of Dr. McArdle, were beyond dispute. *Id.* at 586. The Seventh Circuit also allowed the expert testimony of a physician, acting as team leader but not a psychologist or psychiatrist, who made a diagnosis of PTSD for the plaintiff—something arguably outside of her specialty. The court found it proper for a physician working in such a

role to provide the expert medical diagnosis and evaluations conducted by her team members “in forming her opinion.” *Id.* at 588. A professor of electrical engineering was contracted to offer his opinions on the different ways lightning *could* have penetrated a particular tower, causing injury to the plaintiff. *Id.* at 589. Even though he could not say with any certainty where lightning struck the yard, or if it did so at all, the Seventh Circuit still reversed the exclusion of his testimony, in part, because the court felt that his qualifications and experience were sufficient to make it admissible. *Id.* at 589-90.

The Seventh Circuit also upheld the inclusion of the defendant’s experts over the objection of the plaintiff. One witness “was offered as an expert on the basis of his work for a power company, where he was responsible for ensuring the safety of its facilities from lightning.” *Id.* at 591. Because the proffered expert had “demonstrated professional experience in the area of electrical safety, and Rule 702 specifically contemplates the admission of testimony whose knowledge is based on experience,” the admission of the opinion testimony was upheld. *Id.* Finally, the *Walker* panel allowed the expert testimony of defendant’s doctor, who had only reviewed medical records and done no personal evaluation of the plaintiff. *Id.* Again over the plaintiff’s objection, and because there was “no dispute as to his medical qualifications,” the panel upheld the inclusion of his testimony because the district court had relied on the doctor’s “experience in treating patients with electrical injuries.” *Id.*

Dr. McArdle’s “testimony had a reliable basis in the knowledge and experience of [the relevant] discipline. [He] has extensive academic and practical experience in designing employment evaluations.” *Bryant v. City of Chicago*, 200 F.3d 1092, 1098 (7th Cir. 2000) (internal quotations and citations omitted). He testified at deposition that he relied on his expertise in sports nutrition, Exercise Physiology, exercise and weight control, laboratory

measurement and applied physiology, research methods and Exercise Physiology, and the health-related aspects of physical activity in reaching his expert opinions in this matter. *See* Ex. 4, McArdle Dep. 23:3-24:6. Given his academic and professional qualifications, his decades of research in the field, and his numerous peer-reviewed and generally-accepted scholarly articles and texts, Dr. McArdle should be permitted to provide his expert testimony as to the deficiencies in the City's design and administration of the PAT, as well as their lack of understanding as to its physiologic and metabolic demands.

B. Dr. McArdle's Opinions Are Derived from Reliable Methods and Based on Scientific Conclusions that He Developed and Are Widely Accepted in the Exercise Physiology Field.

The second part of the reliability inquiry focuses on the methodology utilized by an expert seeking to have his opinion testimony admitted under *Daubert*. The Seventh Circuit permits experts to “rely properly on a wide variety of sources and [to] employ a similarly wide choice of methodologies in developing an expert opinion.” *Cooper*, 211 F.3d at 1020. The City ignores this guidance.

After accusing Dr. McArdle of failing to follow “his own well-established methodology, which he used in all the other cases in which he opined on physical testing for public safety jobs,” Def. Mot. at 8, the City states that the “expert witness who ‘decides to depart from the canonical methods must have grounds for doing so that are consistent with the methods and usages of his scientific community.’” Mot. at 8-9 (citing *Braun v. Lorillard Inc.*, 84 F.3d 230, 234 (7th Cir. 1996)).

This analysis is faulty on two separate counts. First, no “well-established methodology” exists for evaluating PATs in the employment context. In different cases, depending on the precise issues and facts presented by the case, Dr. McArdle has employed different methods in reaching his conclusions. *See, e.g.*, Ex. 4, McArdle Dep. 31:19-32:11, 37:9-37:16 (stating that he

conducted “ride-alongs” with the Buffalo Fire Department to “get hands-on experience to see how a fire scene evolves” but did not do any “ride-alongs” for his work as an expert in Columbus, OH and San Francisco, CA). Secondly, and tied to the preceding example, one of the cases cited by the City even recognizes “that the opinion evidence of reputable scientists is admissible in evidence in a federal trial if the particular methods they used in arriving at their opinion are not yet accepted as canonical in their branch of the scientific community.” *Braun*, 84 F.3d at 234. As Dr. McArdle is undoubtedly a “reputable scientist” and because he has not departed from any “canonical methods” in performing his analysis, his methodology should be accepted as sufficient and his testimony admitted under *Daubert*.

The City further criticizes Dr. McArdle’s methods because, “[i]n forming his opinions in this matter, [he] did not interview any instructors at any paramedic training academy, interview any paramedics or conduct any ‘ride-alongs’ with any paramedics in order to gain an understanding of the physical requirements of the Chicago Paramedic job.” Def. Mot. at 2. This is not the law in this Circuit. *NutraSweet Co. v. X-L Eng’g Co.*, 227 F.3d 776, 789 (7th Cir. 2000) (noting that “a personal observation” is not required when an expert relies on “‘specialized knowledge’ of reliable techniques and methods”). As the City later acknowledges, however, Dr. McArdle did “review[] and rel[y] on Plaintiffs’ depositions, Dr. Gebhardt’s and Dr. Jacob’s reports and depositions, a subpoena response by the International Association of Firefighters . . . , two test preparation guides he had prepared . . . , a textbook he co-authored and most of all, his general experience.” Def. Mot. at 8. Rather than cutting against the admissibility of Dr. McArdle’s testimony, this level of review is precisely what the Seventh Circuit deems appropriate to allow expert testimony and easily satisfies *Daubert*. See *Walker*, 208 F.3d at 588, 591 (“Indeed, courts frequently have pointed to an expert’s reliance on the reports of others as an

indication that their testimony is reliable”; admitting employee of power company to testify based on “demonstrated professional experience” and allowing testimony of doctor with indisputable medical qualifications that had “experience in treating patients with electrical injuries” and had examined the plaintiff’s “medical records”); *Cooper*, 211 F.3d at 1021 (“Trained experts commonly extrapolate from existing data.”) (quoting *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997)).

Dr. McArdle further testified that he is “a textbook writer,” Ex. 4, McArdle Dep. 38:17-18, and that he approached the drafting of his report as he would “do a textbook” – “look[ing] at the problem; [] commenting on the specific aspects of the problem, and [] mak[ing] recommendations as to how the problem might be resolved.” *Id.* at 85:13-20. The methods employed by Dr. McArdle are thus a “sufficient basis for the district court to find [him] qualified as an expert witness.” *Walker*, 208 F.3d at 591.

If the City’s argument were taken as true, it would require the exclusion of both defense experts’ testimony, who did not follow the supposedly “canonical methods” of extensive review of training, curriculum review, and discussion with training academy instructors in preparing the initial validation study, Gebhardt Dep. 97:14-100:18, Mar. 15, 2012 (Ex. 5, hereto), or their rebuttal reports. Rather, the City’s experts were provided summary data by the City’s attorneys regarding critical issues addressed in their reports, i.e. Illinois Paramedic Licensing Requirements, emails to Jacobs and Gebhardt at ERN 11764 (Ex. 5, hereto), paramedics hired between 1996 and 2000, *id.* at ERN 11791, estimates of training costs, *id.* at ERN 11793. Purchases of new improved equipment, *id.* at ERN 11794, as well as estimates of call volume and the number of calls on which five-person fire companies were also present. *Id.* at ERN 11798-99, 11803-04. The City has not and cannot cite any authority that an expert qualified by

training and experience to critique the physiologic demands and the import of training and notification for a PAT must follow the same flawed process as the test vendor that developed and implemented the test – which are two completely distinct tasks. These arguments are better left to the trier of fact.

C. Contrary to the City’s Claims, Dr. McArdle’s Conclusions Are Not *Ipse Dixit*, but Based on Years of Laboratory Science, Teaching, Research, and Scholarship in Exercise Physiology, as well as Thorough Review of the Reports and Other Documents Related to the PAT.

Defendant’s final issue with Dr. McArdle’s testimony is that he “is simply presenting ‘bottom line’ *ipse dixit* testimony.” Def. Mot. at 10. In other words, the City claims that Dr. McArdle’s findings regarding the PAT – that the City failed to provide proper notification to candidates of test items and requirements within a time frame necessary to adequately train, Def. Mot. Ex. 2, McArdle Dec. ¶ 17, that the City misclassified the physiologic and metabolic demands of the test items, *id.* at ¶¶ 12, 15, that the City failed to provide adequate information as to the proper and most effective way to prepare, *id.* at ¶¶ 18-20, 23, that the City failed to provide opportunities to view and practice the PAT and did not administer it properly, *id.* at ¶¶ 20-21, 24, that the effects of these errors and omissions were more pronounced on female applicants, *id.* at ¶ 11, that use of an unrepresentative sample severely limits the application of inferential statistics, *id.* at ¶ 16, that claiming a test reduces injuries without data is improper, *id.* at ¶ 24, and that finding a correlation when comparing the same muscle groups is improper, *id.* at ¶ 26 – are so just because he said they are. To the contrary, however, Dr. McArdle based his findings on a thorough examination of the reports, studies, and other testimony provided by the City’s experts.

Like the expert in *Metavante*, 619 F.3d 748, Dr. McArdle used his decades of “experience in the industry,” including his close familiarity with physical abilities tests and, specifically, the types of exercises required by the PAT. *Id.* at 761-62. His work and the

resources he utilized, including the 8th edition of the text book that *he wrote*, all include “observations from the scientific community” which make them reliable and relevant. *In re Yasmin & YAZ (Drospirenone) Mktg., Sales Practices & Prods. Liab. Litig.*, No. 3:09-MD-02100, 2011 WL 6301428, at *6 (S.D. Ill. Dec. 16, 2011). As such, his opinions are both “reasoned and founded on data.” *Manpower*, 732 F.3d at 809. These foundations and observations further serve to make the expert testimony of Dr. McArdle admissible, and not simply *ipse dixit*.

The notion that a Professor of Exercise Physiology with 45 years of experience in the field, and the co-author of three major textbooks, should not be permitted to offer an opinion regarding the CFD paramedic PAT and relevant training requirements here stretches the gatekeeping function of district courts far beyond the boundaries created by the Supreme Court in *Daubert* and *Kumho Tire*.

III. DR. MCARDLE’S EXPERT OPINIONS ARE USEFUL TO THE TRIER OF FACT, MAKING THEM RELEVANT AND ADMISSIBLE UNDER *DAUBERT* AND ITS PROGENY.

The second part of *Daubert*’s inquiry deals with the relevance of the proposed expert’s testimony. *Daubert*, 509 U.S. at 597 (“[T]he Rules of Evidence – especially Rule 702 – do assign the trial judge the task of ensuring that an expert’s testimony . . . is relevant to the task at hand.”). Relevance, generally, is determined by evaluating whether the proposed expert testimony can assist the trier of fact in its assessment of any disputed issues in the case. *See Kumho Tire*, 526 U.S. at 156. As Dr. McArdle’s expert opinions speak to legitimate questions about the factual underpinnings of this case related to the development and administration of the PAT his testimony should be considered relevant and admitted as such.

The Supreme Court in *Daubert*, cautioning lower court’s against the unnecessary exclusion of admissible evidence which could assist the trier of fact at trial, held that “[v]igorous

cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking . . . admissible evidence.” *Daubert*, 509 U.S. at 596 (noting that these “conventional devices, rather than whole sale exclusion . . . , are the appropriate safeguards where the basis of scientific testimony meets the standards of Rule 702.”). *Walker* is again instructive on this point, allowing a doctor’s testimony based on plaintiff’s potentially falsified medical history. *Walker*, 208 F.3d at 586-87. An electrical engineer was permitted to provide testimony about the potential entry points of electrical current in consideration of multiple possibilities. *Id.* at 590. An employee of an electrical company was admitted to provide testimony given his responsibility of ensuring safety against lightning strikes. *Id.* at 591. In all of those instances, the Seventh Circuit determined that the experts “had scientifically valid testimony that would have assisted the jury with its inquiry, and . . . the district court should have allowed” it. *Id.* at 590. Disagreements with that testimony, the court held, should have been addressed “through cross-examination and through the presentation of contrary evidence.” *Id.* at 591.

Similarly, the City attacks Dr. McArdle’s testimony, requesting exclusion, when the proper avenue is the presentation of opinion testimony and cross-examination. Defendant’s criticisms, *see generally* Def. Mot., are properly left to the trier of fact under *Daubert* and Seventh Circuit case law.

CONCLUSION

For the above reasons, Defendant City of Chicago’s Motion to Exclude the Expert Testimony of Dr. William McArdle should be DENIED.

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Respectfully submitted,

s/David Borgen

DAVID BORGEN, CA Bar No. 099354
dborgen@gbdhlegal.com
GOLDSTEIN, BORGEN, DARDARIAN & HO
300 Lakeside Drive, Suite 1000
Oakland, CA 94612
(510) 763-9800; (510) 835-1417 (Fax)

SUSAN P. MALONE
smalonelaw@sbcglobal.net
20 N. Clark Street, Suite 1725
Chicago, IL 60602
(312) 726-2638; (312) 372-6067 (Fax)

MARNI WILLENSON
marni@willensonlaw.com
WILLENSON LAW, LLC
542 S. Dearborn Street, Suite 610
Chicago, IL 60605
(312) 546-4910; (312) 261-9977 (Fax)

Attorneys for Plaintiffs